

Globus: What's New

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The University of Chicago





What is Globus?

Globus delivers...

Big data transfer, sharing,
publication, and discovery...

...directly from your own
storage systems...

...via software-as-a-service



Globus by the numbers

4

major services

218PB
transferred

20 billion
files processed

31,000
registered users

13

national labs
use Globus

3,000

active endpoints
per month

~450

active daily users

99.9%

uptime

35+

institutional
subscribers

1 PB

largest single
transfer to date

3 months

longest
continuously
managed transfer

130

federated
campus identities



No Globus usernames required

- **Globus users no longer require a Globus username & password**
 - Old Globus usernames moved to separate, optional “Globus ID” identity provider
- **Any identity recognized by Globus is now sufficient to access Globus**
- **Globus Account is a primary identity plus a set of linked identities**
 - Verified email address can be a linked identity
- **Sharing & groups use any identity**
- **Used by XSEDE and others**



Adding your campus identity provider to Globus

- **InCommon identity providers that release research & scholarship attributes to CILogon** *(free)*
- **OpenID Connect identity provider supported by Globus Auth** *(subscription)*

Account

[Manage Your Consents](#)[Logout](#)

Identities

[Manage These Identities](#)[Add Linked Identity](#)

Steven Tuecke via University of Chicago

Name: Steven Tuecke**Username:** tuecke@uchicago.edu**E-mail:** tuecke@uchicago.edu**Organization:** University of ChicagoThis is your **primary** identity.

Steve Tuecke via XSEDE

Name: Steve Tuecke**Username:** tuecke@xsede.org**E-mail:** tuecke@uchicago.edu**Organization:** University of ChicagoThis is a **linked** identity.

Globus Plus

Globus Plus gives you [enhanced features](#) on your Globus Connect Personal endpoints.

You do not currently have Globus Plus.

You can get Globus Plus as part of your organization's [Globus Provider subscription](#), by joining their Globus Plus group.

Select your organization:

Didn't find your organization?



Used by XSEDE and others

XSEDE

Extreme Science and Engineering
Discovery Environment



Account ▾

Jetstream Web App would like to:



Access all Jetstream resources ⓘ

By clicking "Allow", you allow **Jetstream Web App** (no terms of service, no privacy policy, no contact information and services. You can rescind this and other co

Allow

Deny



 globus

Globus Account Log In

compute
canada

calcul
canada

Compute Canada has partnered with Globus to offer this high performance file transfer service.

Calcul Canada s'est associé à Globus pour vous offrir ce service de transfert de fichier à haute performance.

Log in to use Compute Canada Globus Web App

Use your existing organizational login

e.g. university, national lab, facility, project, Google or [Globus ID](#)

(Your Globus username and password used prior to February 13, 2016 is now Globus ID)

WestGrid ▾

Continue

Didn't find your organization? Then use Globus ID to [sign up](#).



Share with any identity

Manage Endpoints

[Back to Transfer Files](#) [Endpoint List](#)

[+ add Globus Connect Personal endpoint](#)

[+ add Globus Connect Server endpoint](#)

Tuecke Share on XSEDE Gordon
Shared Endpoint on `xsedegordon:/`

ready
never expires

Overview

Permissions (3)

Roles

Manage Permissions for Tuecke Share on XSEDE Gordon

Host Endpoint: `xsedegordon`

Host Path: `/`

principal	read	write	
Path: / view link for sharing			
Globus Team	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Steve Tuecke (tuecke@globusid.org)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Steven Tuecke (tuecke@uchicago.edu)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Rachana Ananthakrishnan (rachana@nersc.gov)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Add New Permission for Tuecke Share on XSEDE Gordon

Path *

Share With * ☒ user ☐ group ☐ all users ☐ public

Identity/E-mail *

Permissions ☒ read ☐ write



Group membership with any identity

[Manage Data](#)[Publish](#)[Groups](#)[Support](#)[Account](#)[My Groups](#) | [Search for Groups](#) | [Create New Group](#)

My Groups (30)

Search

MANAGER OF (10)

My Admin Queue

Globus Team

Globus Team - Development

Globus Team - User Services

Globus Team Plus Sponsor

go#s3 access

SciNet HPSS Admin Group

Tuecke Lab

Tuecke lab managers

tuecke test 1

UChicago Computation Institute

MEMBER OF (20)

BIRN Community

CNM Contributors

confluence-users-birn

connect

Globus Data Publication Service Admins

Globus Publication Demo Submitters

Globus Publish Allowed

[Create New Group »](#)

Globus Team

[About](#)[Members \(16\)](#)[Subgroups \(2\)](#)[Settings](#)[← Members](#)

Invite People to Globus Team

Search

View Invites

Search

Add

Username: **Email invitation to:** 

Send Invitation

Cancel



Endpoint search

[Manage Data](#)[Publish](#)[Groups ▾](#)[Support ▾](#)[Account](#)

Endpoint

[Cancel](#)

Recently Used



Bookmarks

My Endpoints

[XSEDE TACC Wrangler](#)[UChicago RCC Midway](#)[globuspublish#trial_data](#)[globuspublish#trialdata](#)☐ delete files on destination that do not exist on source☐ preserve source file modification times ?



Endpoint search

[Manage Data](#)[Publish](#)[Groups ▾](#)[Support ▾](#)[Account](#)

Endpoint

xsede|

[Cancel](#)**XSEDE Testing Endpoint 7 at PSC**

owner: xsede@globusid.org

no description provided

XSEDE Trestles

owner: xsede@globusid.org

Trestles is a dedicated XSEDE cluster at SDSC consisting of 324 compute nodes. This endpoint ...

XSEDE Comet

owner: xsede@globusid.org

Comet is a dedicated XSEDE cluster. This endpoint can be used to access data stored on the C...

XSEDE Nautilus

owner: xsede@globusid.org

This endpoint can be used to access data stored on the Nautilus file system.

XSEDE Mason

owner: xsede@globusid.org

Mason at Indiana University is a large memory computer cluster configured to support data-inte...

XSEDE Lonestar

owner: xsede@globusid.org

This endpoint can be used to access data stored on the Lonestar file system.

XSEDE Keeneland

owner: xsede@globusid.org

Keeneland is a hybrid CPU/GPGPU system for use with codes that can take advantage of GPU ...

☐ delete files on destination that do not exist on source☐ preserve source file modification times



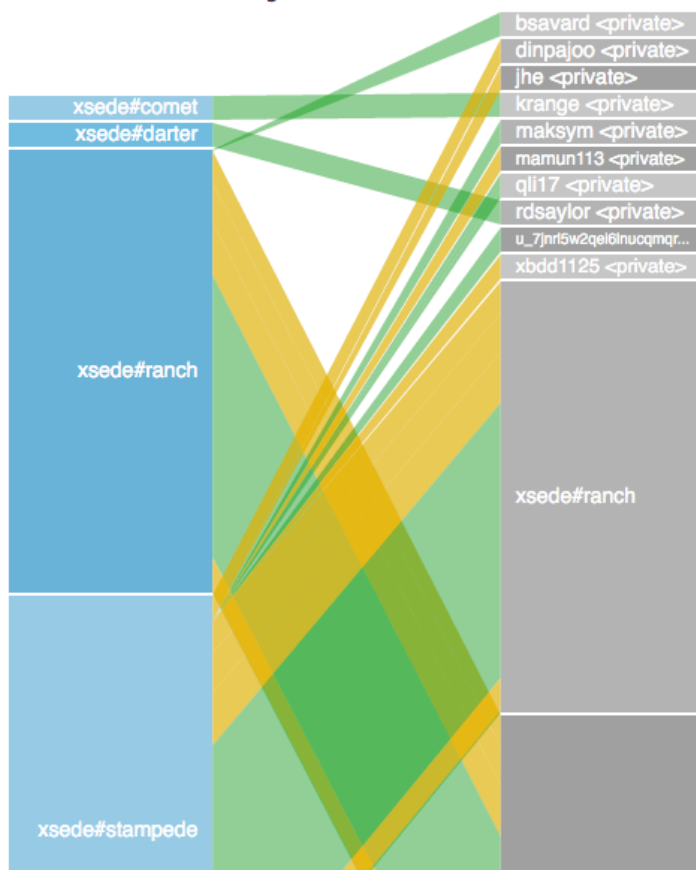
Management Console

[Manage Data](#)[Publish](#)[Groups](#)[Support](#)[Account](#)[Transfer Files](#)[Activity](#)[Endpoints](#)[Bookmarks](#)[Console](#)

Management Console

[endpoint overview](#)[active tasks](#)[pause rules](#)

Current Activity

[xsede# endpoints](#)

xsede#comet

ACTIVE TASKS	OK	RETRYING	WITH FAULTS
1	1	0	0

xsede#darfer

ACTIVE TASKS	OK	RETRYING	WITH FAULTS
1	1	0	0

xsede#keeneland

ACTIVE TASKS	OK	RETRYING	WITH FAULTS
0	0	0	0

xsede#lonestar

ACTIVE TASKS	OK	RETRYING	WITH FAULTS
0	0	0	0

xsede#mason

ACTIVE TASKS	OK	RETRYING	WITH FAULTS
0	0	0	0

xsede#nautilus



Storage connectors

- **Standard storage connectors (POSIX)**
 - Linux, Windows, MacOS
 - Lustre, GPFS, OrangeFS, etc.
- **Premium storage connectors**
 - HPSS
 - HDFS
 - S3
 - Ceph RadosGW (S3 API)
 - Spectra Logic BlackPearl
 - Google Drive



New Globus CLI

Alpha version: <http://globus.github.io/globus-cli/>

Issue tracker: <https://github.com/globus/globus-cli/issues>

```
$ globus transfer
```

```
Usage: globus transfer [OPTIONS] COMMAND [ARGS]...
```

Interact with Globus Transfer API. Transfer, Delete, List, and Rename files on Endpoints, manage your Endpoints and Shares, and monitor your ongoing Transfer Tasks

Options:

<code>-F, --format [json text]</code>	Output format for stdout. Defaults to text
<code>-h, --help</code>	Show this message and exit.
<code>--version</code>	Show the version and exit.

Commands:

<code>acl</code>	Manage Endpoint Access Control Lists
<code>async-delete</code>	Submit a Delete Task
<code>async-transfer</code>	Submit a Transfer Task
<code>bookmark</code>	Manage Endpoint Bookmarks
<code>endpoint</code>	Manage Globus Endpoint definitions
<code>ls</code>	List Endpoint directory contents
<code>mkdir</code>	Make a directory on an Endpoint
<code>rename</code>	Rename a file or directory on an Endpoint
<code>task</code>	Manage asynchronous Tasks



Cloud has transformed how software and platforms are delivered

Software as a service: **SaaS**
(web & mobile apps)



NETFLIX



Platform as a service: **PaaS**



Microsoft Azure



Infrastructure as a service: **IaaS**



EC2



S3



Microsoft Azure



Google Compute Engine

PaaS enables more rapid, cheap, and scalable delivery of powerful (SaaS) apps



Platform Questions

- **How do you leverage Globus services in your own applications?**
- **How do you extend Globus with your own services?**
- **How do we empower the research community to create an integrated ecosystem of services and applications?**



Research data portal

UCAR NCAR

Closures/Emergencies

Locations/Directions

Find People

Hello tuecke@uchicago.edu [dashboard](#) [sign out](#)

NCAR
UCAR



Research Data Archive
Computational & Information Systems Lab

weather • data • climate

Go to Dataset:

Home

Find Data

Ancillary Services

About/Contact

Data Citation

Web Services

For Staff



NCEP Climate Forecast System Version 2 (CFSv2) Monthly Products

ds094.2

For assistance, contact [Bob Dattore](#) (303-497-1825).

Description

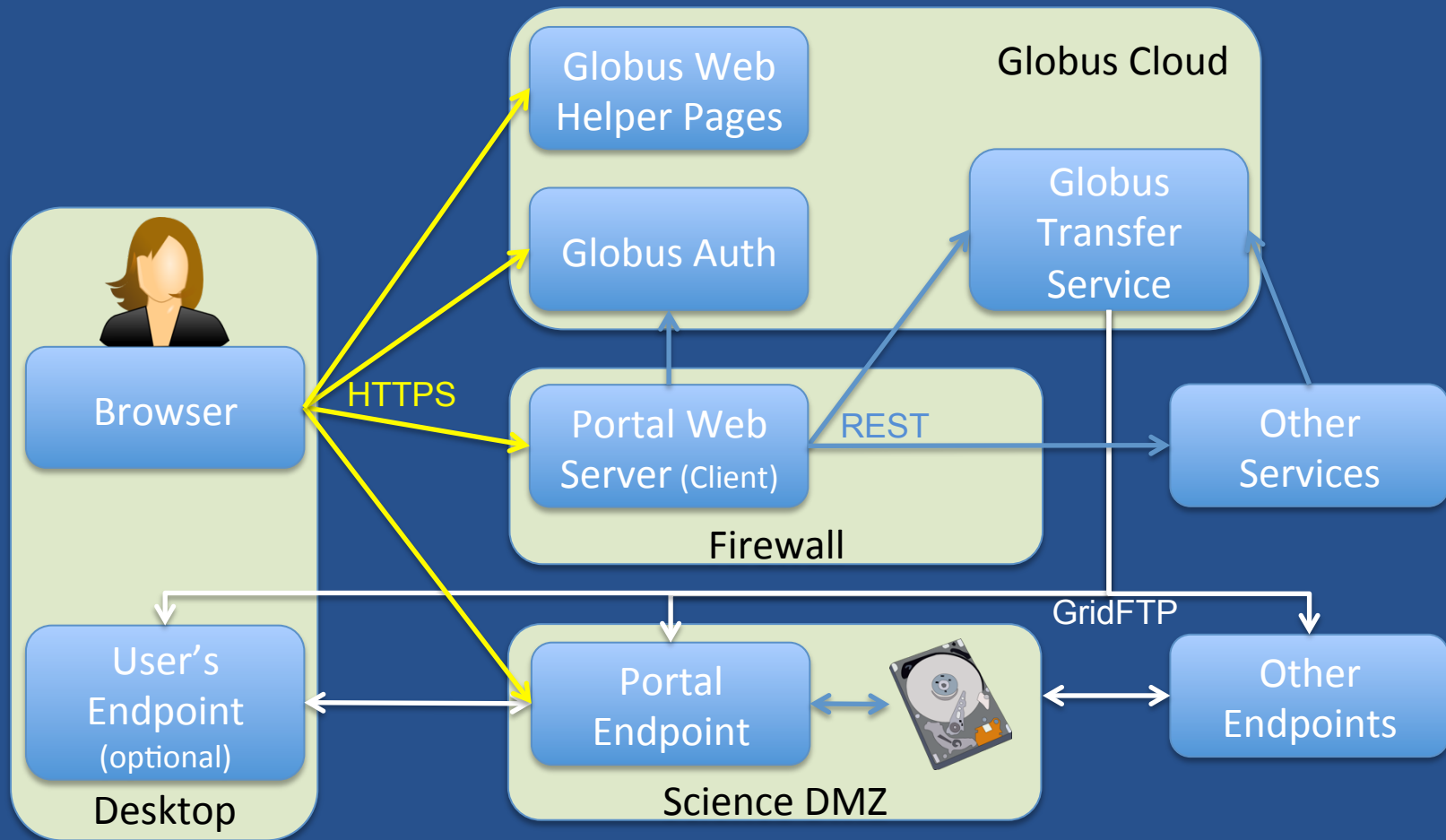
Data Access

Mouse over the table headings for detailed descriptions

Data Description		Data File Downloads		Customizable Data Requests	Other Access Methods	NCAR-Only Access	
		Web Server Holdings	Globus Transfer Service (GridFTP)	Subsetting	THREDDS Data Server	Central File System (GLADE) Holdings	Tape Archive (HPSS) Holdings
Union of Available Products		Web File Listing	Request Globus Invitation	Get a Subset	TDS Access	GLADE File Listing	HPSS File Listing
P R O D U C	Diurnal monthly means	Web File Listing		Get a Subset		GLADE File Listing	HPSS File Listing
	Regular monthly means	Web File Listing		Get a Subset		GLADE File Listing	HPSS File Listing
	Selected Parameter/Level Time Series	Web File Listing		Get a Subset	TDS Access	GLADE File Listing	HPSS File Listing



Prototypical research data portal



- Move portal storage into Science DMZ, with Globus endpoint
- Leave Portal Web server behind firewall
- Globus handles the security and data heavy lifting



Globus Transfer API

Nearly all Globus Web App functionality implemented via public Transfer API

globus docs

APIs ▾ How To Guides ▾ Support ▾ 🔍

HOME / GLOBUS APIS / TRANSFER API DOCUMENTATION

Transfer API Documentation

Last Updated: July 18, 2016

This API provides a REST-style interface to the [Globus](#) reliable file transfer service. The Transfer API supports monitoring the progress of a user's file transfer tasks, managing file transfer endpoints, listing remote directories, and submitting new transfer and delete tasks. The API is ideal for integration into Portals or Gateways to provide complex reliable file transfer capabilities without having to develop and support these features on your own. It is also easy to use for scripting, using any standard HTTPS or REST client library in scripting languages like Python and Ruby.

Contents

- [API Overview](#) - overview of API with authentication instructions and examples
- [Endpoint Activation](#) - associate user credentials with an endpoint
- [Task Submission](#) - submit transfer and delete tasks
- [Task Management](#) - monitor and cancel background transfer and delete tasks
- [File Operations](#) - foreground filesystem operations, including directory listing (ls), creating directories (mkdir), and renaming files (rename)
- [Endpoint Management](#) - create, update, and delete endpoint definitions and servers
- [Endpoint Search](#) - find endpoints matching a search query, by display_name and other endpoint fields

API Overview

Transfer API Documentation

Endpoint Activation

Task Submission

Task Monitoring

File Operations

Endpoint Management

Endpoint Search

Endpoint Roles

Endpoint Bookmarks

Endpoint ACL

<https://docs.globus.org/api/transfer/>



Globus Auth

- **Foundational identity and access management (IAM) platform service**
- **Simplify creation and integration of advanced apps and services**
- **Brokers authentication and authorization interactions between:**
 - end-users
 - identity providers: InCommon, XSEDE, Google, portals
 - services: resource servers with REST APIs
 - apps: web, mobile, desktop, command line clients
 - services acting as clients to other services
- **Based on OAuth2 and OpenID Connect**
- **IAM platform for XSEDE (e.g., XUP, Jetstream, Jira)**

“A single global information space”





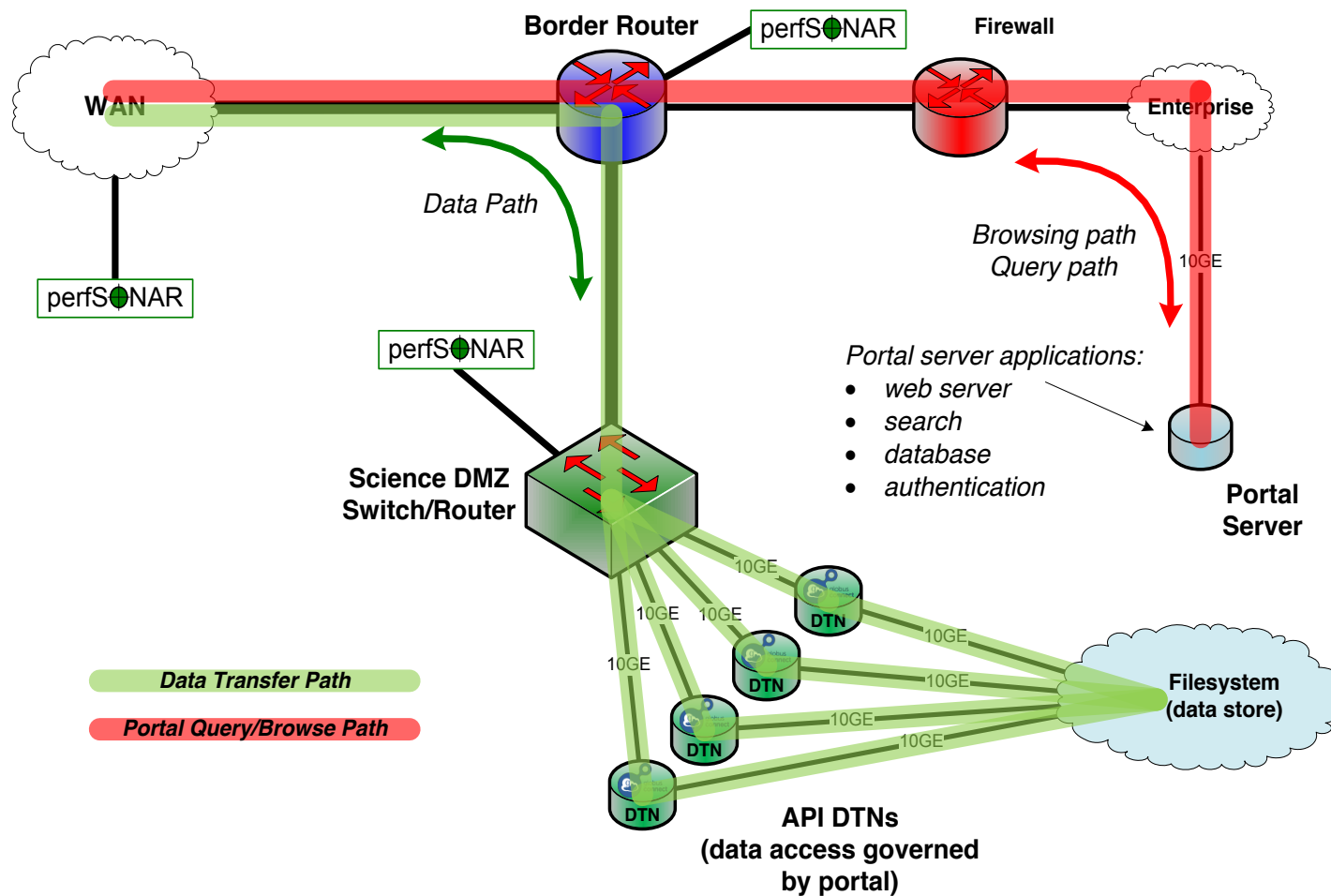
HTTPS Access to Endpoints

(coming soon)

- **Enhanced use of research storage:**
 - asynchronous, bulk transfer via GridFTP
 - synchronous remote access via HTTPS
- **Enhanced Globus web app**
 - Browser-based upload/download
 - Inline file viewer
- **Integration with clients and web apps**



Next-Generation Portal Leverages Science DMZ



<https://fasterdata.es.net/>

Harness the power
of the Globus
research data
management
cloud.



Transfer API

The Transfer API provides a REST-style interface to the Globus reliable file transfer service. The API can be used to monitor the progress of file transfers, manage file transfer endpoints, list remote directories, and submit new transfer and delete tasks.

[LEARN MORE](#) >



Resource Providers

Globus allows you, as a resource provider, to easily offer reliable, secure, high-performance research data management capabilities to your users and their collaborators, directly from your own storage infrastructure.

[LEARN MORE](#) >



Toolkit

The open source Globus Toolkit is a fundamental enabling technology for the "Grid," allowing users to access high-performance computing resources securely across corporate, institutional, and geographic boundaries without sacrificing local autonomy.

[LEARN MORE](#) >



Globus SDK Python

← → ↻ globus.github.io/globus-sdk-python/ ☆ ⓘ ⌵

globus-sdk-python 0.2.5 documentation » next | modules | index

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- Installation
- Basic Usage
- API Documentation
- License

Next topic

High Level API

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Show Source

Quick search

Go

Globus SDK for Python (Beta)

This SDK provides a convenient Pythonic interface to [Globus](#) REST APIs, including the Transfer API and the Globus Auth API. Documentation for the REST APIs is available at <https://docs.globus.org>.

Two interfaces are provided - a low level interface, supporting only `GET`, `PUT`, `POST`, and `DELETE` operations, and a high level interface providing helper methods for common API resources.

Source code is available at <https://github.com/globus/globus-sdk-python>.

Installation

The Globus SDK requires [Python](#) 2.6+ or 3.2+. If a supported version of Python is not already installed on your system, see this [Python installation guide](#).

The simplest way to install the Globus SDK is using the `pip` package manager (<https://pypi.python.org/pypi/pip>), which is included in most Python installations:

```
pip install globus-sdk
```

This will install the Globus SDK and it's dependencies.

Bleeding edge versions of the Globus SDK can be installed by checking out the git repository and installing it manually:

```
git checkout https://github.com/globus/globus-sdk-python.git
cd globus-sdk-python
python setup.py install
```

Basic Usage

`pip install globus-sdk-python`
<https://github.com/globus/globus-sdk-python>



Sample python data portal

Modern Research Data Portal

LOGIN | SIGN UP

Modern Research Data Portal

It's how research data management is done!

Globus Transfer API

API reference for transfer and sharing functions.

Globus Auth API

API reference for authentication and authorization.

Frequently Asked Questions

When all else fails...

<https://github.com/globus/globus-sample-data-portal>



GlobusWorld Developer Workshops

[Home](#)[Register](#)[Program](#)[Contact Us](#)

Welcome to the GlobusWorld Tour!

We're presenting a series of Globus tutorials and developer workshops across the US, building on the success of the [workshop held at GlobusWorld 2016](#). These workshops are made possible by the various hosting institutions that generously provide meeting space and other financial support.

The following workshops are currently scheduled:

- **September 13-14, 2016 - LBNL, Berkeley, CA**
- **October 12-13, 2016 - Yale University, New Haven, CT**
- **Date TBD - NCAR, Boulder, CO**

If you would like to host a workshop at your institution please contact us.

Motivation: New high-speed networks make it possible, in principle, to transfer and share research data at tremendous speeds and scales—but have also proved challenging to use in practice. Two new technologies now allow us to translate this potential into reality: Science DMZ architectures provide frictionless end-

Why Attend?

- Learn how the Globus platform simplifies development of web applications for researchers
- Experiment with new Globus services and APIs
- Exchange ideas with peers on ways to apply Globus technologies
- Expand your knowledge of Globus administration features

Workshops are free to attend and open to all, but we do require registration since

<https://www.globusworld.org/tour/>



Summary

- Globus SaaS continues to improve its capabilities for researchers and research computing centers
- Globus PaaS opens new opportunities for developers creating web and mobile applications for researchers



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**National Institute of
Standards and Technology**
U.S. Department of Commerce



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NATIONAL LABORATORY



powered by

amazon
web services